

**The Swedish Nuclear Power Inspectorate's Regu-
lations concerning Physical Protection of Nuclear
Facilities**

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

The Swedish Nuclear Power Inspectorate's Regulations concerning Physical Protection of Nuclear Facilities

Decided on August 24, 2005.

On the basis of 20a and 21 §§ of the Ordinance (1984:14) on Nuclear Activities, the Swedish Nuclear Power Inspectorate has issued the following regulations and the following general recommendations.

Applicability and definitions

1 § These regulations apply to measures required to protect nuclear facilities against unauthorized access, sabotage or other such impacts that can result in a radiological accident and to measures to prevent unauthorized possession of nuclear material or nuclear waste, known as physical protection. The regulations include provisions on technical, organizational and administrative measures.

These regulations apply to the following types of nuclear facilities for which permission to conduct nuclear activities is granted on the basis of 5 § of the Act (1984:3) on nuclear activities.

- a nuclear power reactor,
- a research or materials testing reactor,
- a facility for the final disposal of nuclear material or storage of nuclear waste that has not been sealed,

- a facility for the handling, processing or storage of nuclear material,
- a facility for the handling, processing or storage of nuclear waste.

However, these regulations do not apply to landfills for low-level nuclear waste in accordance with 19 § 2 of the Ordinance (1984) on Nuclear Activities.

The basic provisions concerning physical protection are set out in 4 § of the Act (1984:3) on Nuclear Activities. Additional provisions are provided in the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:1) concerning safety in nuclear facilities and the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:2) concerning the design and construction of nuclear power reactors.

2 § In these regulations, nuclear facility, nuclear material and nuclear waste refer to the same terms as those defined in 2 § of the Act (1984:3) on Nuclear Activities.

In these regulations, physical protection, radiological accidents and safe state refer to the same terms as those defined in the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:1) concerning safety in nuclear facilities.

The following terms and definitions are used in these regulations.

Protected area: area around a facility and surrounded by a physical barrier.

Inner area: area where Category I nuclear material, in accordance with the Convention on Physical Protection of Nuclear Material, is stored¹.

Controlled access: measures that ensure that only authorized people are given access to an area.

Perimeter protection: protection of a protected area so that unauthorized intrusion is made difficult and delayed.

Registered access: measures that ensure that people entering an area are registered.

Guarded area protection: protection of guarded area so that unauthorized

¹ Convention on the Physical Protection of Nuclear Material. Sweden's agreement with other governments, SÖ 1985:24.

intrusion is made difficult and delayed.

Guarded area: the buildings or parts of buildings containing equipment for the safe operation of the facility or where nuclear materials or nuclear waste are handled, processed, stored or disposed of.

Monitoring of alarms: such a function that ensures that an alarm is given if a disturbance in the function occurs.

Classification of facilities into categories

3 § The facilities covered by these regulations have been classified into three categories. The classification is given in Appendix 1.

Protection and control of access to the facility etc.

4 § At a facility, the measures shown in Appendix 2 shall be adopted to protect the facility and control access to the facility.

Furthermore, at a facility, measures must be planned and prepared in order to temporarily reinforce the physical protection in the event of an increase in the severity of the threat situation.

Handling, processing, storage or final disposal of nuclear material or nuclear waste

5 § Nuclear material and nuclear waste shall be handled, processed, stored or finally disposed of within the guarded area.

With the exception of what is stated in the first paragraph, nuclear material, which in accordance with the table in Appendix 1 is classified as Category 2 or 3, may be stored temporarily within the protected area in relation to the reception or pending the dispatch from a facility, on condition that:

1. the nuclear material is contained in the stipulated freight containers,
2. the material is stored in a specially designated and clearly delimited area and
3. measures are adopted to immediately detect any unauthorized presence near to or in immediate connection with freight containers and immediately verify the cause for alarm.

With the exception of what is stated in the first paragraph, low and intermediate-level nuclear waste may be stored temporarily within the protected area, pending processing or transport or, following processing or transport, on condition that:

1. the nuclear waste is contained in the stipulated freight containers,
2. the material is stored in a specially designated and clearly delimited area and
3. measures are adopted to immediately detect any unauthorized presence near to or in immediate connection with freight containers and immediately verify the cause for alarm.

Before storage is carried out in accordance with the second or third paragraph, a risk assessment shall be carried out. The risk assessment shall be documented.

Organization and personnel

Person responsible for physical protection

6 § The licensee shall appoint an individual who holds a senior management position to be responsible for overall issues relating to physical protection. With respect to these issues, the individual shall have an independent position in relation to the parts of the organization responsible for operations.

Security clearance of personnel

7 § Individuals who are employed or who, in other ways, take part in operations at a facility shall be reliable and suitable from the standpoint of security. The licensee is responsible for conducting security clearance on these individuals.

Notwithstanding what is stated in the first paragraph where, e.g. due to the pressure of time, it is obviously unreasonable to carry out an adequate security clearance, in exceptional cases, an individual may participate in activities at the facility provided that measures are implemented, for example, in the form of an escort or other similar surveillance.

Regulations regarding security clearance are provided in the Act on Security Protection (1996:627) and the Ordinance on Security Protection (1996:633).

Study visits

8 § Study visits in the facility shall be conducted under controlled forms. Visitors shall always be escorted by specially trained personnel.

Handling of information on safety and security measures

9 § Information that is of decisive importance for safety and security measures at the facility may not be passed on to unauthorized persons. There shall be documented procedures at the facility for the handling and storage of such information.

Locks and keys

10 § Lock systems that are used shall have a security level which corresponds to the physical protection in general for each area or room. Documented procedures shall be available for the safe handling of lock cylinders and keys/keycards. Keys/keycards may only be allocated to personnel who are authorized to be in the room concerned.

Computerized systems

11 § Computerized systems of importance for the safety and security of the facility, including physical protection, shall be protected against unauthorized access and computer intrusion.

Exceptions

12 § The Swedish Nuclear Power Inspectorate may grant exceptions from these regulations if particular grounds exist and if this can be done without neglecting the purpose of the regulations.

Entry into force and transitional regulations

These regulations enter into force on January 1, 2007.

Notwithstanding the first paragraph, measures to comply with the provisions of 4 § Appendix 2, points 1.8, 1.15, 1.16 second paragraph, 2.4 second paragraph, 2.8, 3.6 shall be implemented no later than January 1, 2008. Measures to comply with the regulations in accordance with 4 § Appendix 2, points 1.4 second paragraph, 1.9 second paragraph, 1.10, 1.18 second paragraph, 1.19, 1.21, 2.7 second and third paragraph, 2.9 second paragraph, 2.10, 3.7 second paragraph shall be implemented no later than by October 1, 2008.

On behalf of the Swedish Nuclear Power Inspectorate

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Appendix 1**Categorization of facilities**

The categorization of facilities in accordance with 3 § shall be conducted as shown below. The categorization of a facility for the handling, processing and storage of nuclear material, in addition to the facilities that are specially mentioned below, shall be determined by the protection category to which the nuclear material at the plant is assigned in accordance with the table below Point 2 Categorization of nuclear material.

1. Categorization

Category:

1.
 - nuclear power reactor,
 - central interim storage facility for spent nuclear fuel or
 - facility for the handling, processing or storage of nuclear material assigned to Category 1.

2.
 - research and materials testing reactor
 - facility for the handling, processing or storage of spent nuclear fuel besides a central interim storage facility in accordance with Category 1 above,
 - facility for the final storage of nuclear material or high-level nuclear waste which has not been finally disposed of,
 - facility for the manufacturing of nuclear fuel or
 - facility for the handling, processing or storage of nuclear material assigned to Category 2.

3.
 - facility for handling, processing, storage or the final disposal of low and intermediate-level waste,
 - nuclear power reactor or research and material testing reactor which is closed down and from which all of the nuclear fuel and material has been removed or a
 - facility for the handling, processing or storage of nuclear material assigned to Category 3.

2. Categorization of nuclear material

Facilities for the handling, processing and storage of nuclear material are to be assigned to Category 1-3 depending on the quantity, type and enrichment of the nuclear material at the facility. The table below is to be used for the categorization. The table is based on the corresponding table in the Convention on the Physical Protection of Nuclear Material¹.

Nuclear material	Form a=enrichment	Category 1 m=mass (kg)	Category 2 m=mass (kg)	Category 3 m=mass (kg)
Plutonium	Unirradiated	$m \geq 2$	$0.5 < m < 2$	$0.015 < m \leq 0.5$
Uranium-233	Unirradiated	$m \geq 2$	$0.5 < m < 2$	$0.015 < m \leq 0.5$
Uranium-235	Unirradiated ≥ 20	$m \geq 2$	$1 < m < 5$	$0.015 < m \leq 1$
	$10 \leq a < 20$		$m \geq 10$	$1 < m < 10$
	$0.71 < a < 10$			$m \geq 10$
Uranium Plutonium			Dose rate at a distance of 1 m from the surface of the unshielded material $> 1 \text{ gray/h}^2$	

Nuclear material that cannot be assigned to any of categories 1-3 in the table, for example, due to the fact that they occur in small quantities, shall be considered to belong to Category 3 for the application of these regulations.

With the exception of the above, nuclear material shall always be assigned to Category 3 if it is in a form that means that:

1. the nuclear material is no longer useable for any nuclear activity
2. the risk of dispersion to or contamination of the environment has been minimized and
3. it is practically impossible to recover the nuclear material.

¹ Convention on the Physical Protection of Nuclear Material. Sweden's agreement with other Governments, SÖ 1985:24.

² If the dose rate is 1 gray/h or less, the material shall be considered as unirradiated for the application of this table.

Appendix 2

The following measures shall be adopted at facilities assigned to Category 1

Protection of the facility

Guarding of the facility

1.1 The licensee shall ensure that there are constantly responsible personnel and specially trained personnel at the facility for guarding purposes (guards).

The necessary number of guards shall be available to conduct the following duties:

1. check the authorization of people in the facility,
2. check that objects listed in 1.14 point 3 are not taken into the facility,
3. check that devices for physical protection are in working order,
4. verify alarms,
5. hinder, delay and, if possible, prevent unauthorized intrusion.

1.2 It should be possible to reinforce the guards in accordance with 1.1, if necessary and on short notice, by extra guards.

1.3 Regulations concerning the guarding of protected property are provided in the Act (1990:217) and Ordinance (1990:1334) on the Protection of Installations of National Importance etc.

Central alarm station

1.4 The facility shall be connected to a central alarm station.

The central alarm station shall be designed to protect against intrusion or other impacts in accordance with the conditions specified in the design basis threat decided by the Swedish Nuclear Power Inspectorate³.

It shall be possible to immediately detect and verify unauthorized intrusion into the central alarm station. Access to the central alarm station shall be achieved through controlled access.

³ The design basis threat is described in SKI-PM 2003:07.

The central alarm station shall be equipped with assault alarms, with monitoring of alarms, to the facility control room or equivalent and to the police authority.

1.5 The central alarm station shall be constantly manned by specially trained personnel and equipped and designed so that the following functions can be maintained without interruption:

1. monitoring alarms from surveillance equipment, including verification of alarms,
2. logging and documentation of events,
3. alerting personnel and competent authorities in the event of threats to the facility,
4. maintaining such internal and external communication as intended in 1.24,
5. handling the access control system.

1.6 The central alarm station and the technical surveillance equipment connected to the central alarm station shall be equipped with an auxiliary power supply.

Protected area

1.7 A nuclear facility shall be surrounded by a protected area and shall be fenced-off by perimeter protection.

The perimeter protection shall be designed so that unauthorized intrusion is made difficult and delayed. It shall be possible to immediately detect unauthorized intrusion into the protected area. It shall be possible to immediately verify the cause of the alarm, as well as where the alarm was given.

All entrances into and exits from the protected area shall be locked and equipped with an alarm. Access to the protected area shall be achieved through controlled access.

Measures shall be adopted to prevent forceful intrusion of motor vehicles through the perimeter protection.

1.8 As far as possible and reasonable, unlawful removal of nuclear material and nuclear waste from the facility shall be detected.

Guarded area

1.9 The guarded area shall be located inside the protected area. The boundary of the guarded area shall be fenced-off by guarded area protection.

The protection comprises building components and alarm devices and shall be designed so that unauthorized intrusion is made difficult and delayed. It shall be possible to immediately detect unauthorized intrusion into the guarded area.

1.10 Where possible and reasonable the guarded area shall be divided into sections. Access to the guarded area shall be achieved through controlled and registered access.

Inner area

1.11 The inner area shall be located inside the guarded area and the design shall be such that unauthorized handling of nuclear material stored in the area is prevented in accordance with the conditions specified in the design basis threat decided by the Swedish Nuclear Power Inspectorate .

Measures shall be adopted to make difficult and delay unauthorized intrusion into the inner area. It shall be possible to immediately detect unauthorized intrusion into the inner area. It shall be possible to immediately verify the reason for the alarm as well as where the alarm was given. All entrances into and exists from the inner area shall be locked and equipped with alarms. Access to the inner area shall be achieved through controlled and registered access.

Access to the facility

Access for individuals

1.12 The licensee shall decide which individuals are to be authorized to access the facility. A successful security clearance shall be a prerequisite for an individual gaining access to the facility on his/her own. In other cases, the individual shall be escorted by a specially designated individual who is authorized to access the facility.

The first paragraph does not apply to individuals who, according to law, are authorized to gain access to the facility.

1.13 Individuals who are granted access to the facility shall be assigned an authorization document that is to be worn so that it is visible.

1.14 The licensee shall ensure that documented procedures exist, for access to the facility, which comprises at the minimum:

1. a list of individuals who are entitled to grant access to the facility,
2. a list of individuals who are allowed access,
3. a list of objects that cannot be taken into the facility without special permission.

1.15 Measures shall be adopted to prevent individuals, who are given access to the facility, to bring objects listed in 1.14 point 3.

Access for vehicles

1.16 The licensee shall decide which vehicles shall be given access to the facility. Access of vehicles to the protected area or guarded area shall be achieved under controlled forms and only vehicles on work-related missions may be allowed access.

Before a vehicle is given access to a protected or guarded area, it shall be searched in order to prevent objects listed in 1.14 point 3 from being taken into the facility.

Main control room

1.17 The main control room of the facility shall be located within the guarded area. Measures shall be adopted so that unauthorized intrusion into the main control room is made difficult and delayed. It shall be possible to immediately detect and verify unauthorized intrusion into the control room. All entrances into and exits from the control room shall be locked and equipped with an alarm. Access to the control room shall be achieved through controlled and registered access.

1.18 The control room shall be equipped with an assault alarm with alarm monitoring by the facility central alarm station and police authority. If the assault alarm is set off, it shall be possible to observe and follow events in the control room from the central alarm station.

The control room shall be designed to protect against intrusion or other impacts in accordance with the conditions specified in the design basis threat decided by the Swedish Nuclear Power Inspectorate⁴ for at least as long as it takes to execute the measures specified in 1.19.

1.19 At nuclear power reactors, measures shall be prepared in order to, in the event of a threat to the facility, bring the facility to a safe state and to block manoeuvre functions from the control room and to evacuate the control room.

1.20 Further regulations concerning control rooms in nuclear power reactors are provided in 18 – 19 §§ of the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:2) concerning the design and construction of nuclear power reactors.

Emergency control post

1.21 Measures shall be adopted so that unauthorized intrusion into the emergency control post in accordance with 20 § of the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:2) concerning the design and construction of nuclear power reactors, is made difficult and delayed .

It shall be possible to immediately detect and verify unauthorized intrusion into the emergency control post. All entrances into an emergency control post shall be locked and equipped with an alarm. Access to the emergency control post shall be achieved through controlled and registered access.

1.22 At nuclear power reactors, it shall be possible to monitor the reactor status during events and threats as described in the design basis threat decided by the Swedish Nuclear Power Inspectorate⁵, and which, in accordance with 1.21, entails that neither the control room nor the emergency control post are available.

1.23 Regulations concerning emergency preparedness measures in connection with abnormal operation and accidents are provided in Chapter 2, 12 – 13 §§ of the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:1) concerning safety in nuclear facilities.

⁴ The design basis threat is described in SKI-PM 2003:07.

⁵ Ibid.

Additional regulations concerning emergency control posts in nuclear power reactors are provided in 20 § of the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:2) concerning the design and construction of nuclear power reactors.

Communication equipment

1.24 Communication equipment shall be kept at the facility to an adequate extent in order to facilitate communication within the facility and between the facility and the police authority or other concerned authorities. The communication equipment shall comprise at least two diversified communication systems that are independent of each other and which continuously allow two-way voice communication, internally and externally. For internal and external alarm monitoring, there shall be at least two communication systems that are independent of each other and diversified.

Searches after nuclear power reactor outages

1.25 After the completion of work in connection with a refuelling and maintenance outage or other major repair work carried out by external personnel, areas in the guarded area which contain equipment of importance for safety shall be searched. The search shall be conducted before the reactor is taken into operation again.

There shall be procedures at the facility which specify how the search shall be conducted and that the outcome of the search shall be successful ("without comment") before the facility may be re-started.

The following measures shall be adopted at facilities assigned to Category 2

Protection of the facility

Surveillance of the facility

2.1 The licensee shall ensure that there are constantly responsible personnel and specially trained personnel at the facility for guarding purposes (guards).

The necessary number of guards shall be available to conduct the following duties:

1. check the authorization of people in the facility,
2. check that objects listed in 2.13 point 3 are not taken into the facility,
3. check that devices for physical protection are in working order,
4. verify alarms,
5. hinder, delay and, if possible, prevent unauthorized intrusion.

2.2 It should be possible to reinforce the guards in accordance with 2.1, if necessary and on short notice, by extra guards.

2.3 Regulations concerning the guarding of protected property are provided in the Act (1990:217) and Ordinance (1990:1334) on the Protection of Installations of National Importance etc.

Central alarm station

2.4 The facility shall be connected to a central alarm station.

Measures shall be adopted to make difficult and delay unauthorized intrusion into the central alarm station. It shall be possible to immediately detect and verify unauthorized intrusion into the central alarm station. Access to the central alarm station shall be achieved through controlled access.

The central alarm station shall be equipped with assault alarms with monitoring of alarms to the facility control room or equivalent and to the police authority.

2.5 The central alarm station shall be constantly manned by specially trained personnel and equipped and designed so that the following functions can be maintained without interruption:

1. monitoring alarms from surveillance equipment, including verification of alarms,
2. logging and documentation of events,
3. alerting personnel and competent authorities in the event of threats to the facility,
4. maintaining such internal and external communication as intended in 2.21,
5. handling the access control system.

2.6 The central alarm station and the technical surveillance equipment connected to the central alarm station shall be equipped with an auxiliary power supply.

Protected area

2.7 A nuclear facility shall be surrounded by a protected area and shall be fenced-off by perimeter protection.

The perimeter protection shall be designed so that unauthorized intrusion is made difficult and delayed. It shall be possible to immediately detect unauthorized intrusion into the protected area. It shall be possible to immediately verify the cause of the alarm, as well as where the alarm was given.

All entrances into and exits from the protected area shall be locked and provided with an alarm. Entry into the protected area shall be achieved through controlled access.

Measures shall be adopted to prevent forceful intrusion of motor vehicles through the perimeter protection.

2.8 As far as possible and reasonable, unlawful removal of nuclear material and nuclear waste from the facility shall be detected.

Guarded area

2.9 The guarded area shall be located inside the protected area. The boundary of the guarded area shall be fenced-off by guarded area protection.

The guarded area protection comprises building components and alarm devices and shall be designed so that unauthorized intrusion is made difficult and delayed. It shall be possible to immediately detect unauthorized intrusion into the guarded area.

2.10 Where possible and reasonable the guarded area shall be divided into sections. Access to the guarded area shall be achieved through controlled and registered access.

Access to the facility

Access for individuals

2.11 The licensee shall decide which individuals are to be authorized to access the facility. A successful security clearance shall be a condition for an individual gaining access to the facility on his/her own. In other cases, the individual shall be escorted by a specially designated individual who is authorized to access the facility.

The first paragraph does not apply to individuals who, according to law, are authorized to gain access to the facility.

2.12 Individuals who are granted access to the facility shall be assigned an authorization document that is to be worn so that it is visible.

2.13 The licensee shall ensure that documented procedures exist for access to the facility which comprises at the minimum:

1. a list of individuals who are entitled to grant access to the facility,
2. a list of individuals who are allowed access,
3. a list of objects that cannot be taken into the facility without special permission.

2.14 Measures shall be adopted to prevent individuals, who are given access to the facility, to bring objects listed in 2.13 point 3.

Access for vehicles

2.15 The licensee shall decide which vehicles shall be given access to the facility. Access of vehicles to the protected area and guarded area shall be achieved under controlled forms and only vehicles on work-related missions may be allowed access.

Before a vehicle is given access to a protected or guarded area, measures shall be taken to prevent objects listed in 2.13 point 3 from being taken into the facility.

Main control room in a research or materials testing reactor

2.16 The main control room of a research or materials testing reactor shall be located within the guarded area. Measures shall be adopted so that unauthorized intrusion into the main control room is made difficult and delayed. It shall be possible to immediately detect and verify unauthorized intrusion into the control room. All entrances into and exits from the control room shall be locked and equipped with alarms. Access to the control room shall be achieved through controlled and registered access.

The control room shall be equipped with an assault alarm with alarm monitoring by the facility central alarm station and police authority. If the assault alarm is set off, it shall be possible to observe and follow events in the control room from the central alarm station.

The design of the control room shall protect against intrusion or other impacts in accordance with the conditions specified in the design basis threat decided by the Swedish Nuclear Power Inspectorate⁶ for at least as long as it takes to execute the measures specified in 2.17.

2.17 At a research and materials testing reactor, measures shall be prepared to, in the event of a threat to the facility, bring the facility to a safe state and to block manoeuvre functions from the control room and evacuate the control room.

Emergency control post

2.18 At a research or materials testing reactor, an emergency control post shall exist to supervise and monitor safe reactor shutdown and local manoeuvre posts for bringing the reactor to a safe state for the events and threats described in the design basis threat decided by the Swedish Nuclear Power Inspectorate⁷ and which entails that the main control room is not available.

2.19 At a research reactor or materials testing reactor, measures shall be adopted to make difficult and delay unauthorized intrusion into the emergency control post. It shall be possible to immediately detect and verify unauthorized intrusion into the emergency control post. All entrances into and exits from the

emergency control post shall be locked and provided with an alarm. Access into the emergency control post shall be achieved through controlled access.

2.20 Additional regulations concerning emergency preparedness measures in connection with abnormal operation and accidents are provided in Chapter 2, 12 – 13 §§ of the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:1) concerning safety in nuclear facilities.

Communication equipment

2.21 Communication equipment shall be kept at the facility to an adequate extent in order to facilitate communication within the facility and between the facility and the police authority or other concerned authorities. The communication equipment shall comprise at least two diversified communication systems that are independent of each other and which continuously allow two-way voice communication, internally and externally. For internal and external alarm monitoring, there shall be at least two communication systems that are independent of each other and diversified.

⁶ The design basis threat is described in SKI-PM 2003:07.

⁷ Ibid.

The following measures shall be adopted at facilities assigned to Category 3

Protection of the facility

Guarding of the facility

3.1 The licensee shall ensure that there are constantly responsible personnel and specially trained personnel at the facility for guarding purposes (guards).

The necessary number of guards shall be available to conduct the following duties:

1. check the authorization of people in the facility,
2. check that devices for physical protection are in working order,
3. verify alarms,
4. hinder, delay and, if possible, prevent unauthorized intrusion.

3.2 It should be possible to reinforce the guards in accordance with 3.1, if necessary and on short notice, by extra guards.

Central alarm station

3.3 The facility shall be connected to a central alarm station.

3.4 The central alarm station shall be constantly manned by specially trained personnel and equipped and designed so that the following functions can be maintained without interruption:

1. monitoring alarms from surveillance equipment,
2. logging and documentation of events,
3. alerting personnel and competent authorities in the event of threats to the facility.

Protected area

3.5 A nuclear facility shall be surrounded by a protected area and shall be fenced-off by perimeter protection.

3.6 As far as possible and reasonable, unlawful removal of nuclear material and nuclear waste from the facility shall be detected.

Guarded area

3.7 The guarded area shall be located inside the protected area. The boundary of the guarded area shall be fenced-off by guarded area protection.

The guarded area protection comprises building components and alarm devices and shall be designed so that unauthorized intrusion is made difficult and delayed. It shall be possible to immediately detect authorized intrusion into the guarded area.

3.8 Access to the guarded area shall be achieved through controlled and registered access.

Access to the facility

Access for individuals

3.9 The licensee shall decide which individuals are to be authorized to access the facility. A successful security clearance shall be a condition for an individual gaining access to the facility on his/her own. In other cases, the individual shall be escorted by a specially designated individual who is authorized to access the facility.

The first paragraph does not apply to individuals who, according to law, are authorized to gain access to the facility.

3.10 Individuals who are granted access to the facility shall be assigned an authorization document that is to be worn so that it is visible.

3.11 The licensee shall ensure that documented procedures exist for access to the facility which comprises at the minimum:

1. a list of individuals who are entitled to grant access to the facility,
2. a list of individuals who are allowed access.

Access for vehicles

3.12 The licensee shall decide which vehicles shall be given access to the facility. Access of vehicles to the protected area or guarded area shall be achieved under controlled forms and only vehicles on work-related missions may be allowed access.

Communication equipment

3.13 Communication equipment shall be kept at the facility to an adequate extent in order to facilitate communication within the facility and between the facility and the police authority or other concerned authorities. Alarm monitoring shall apply for alarms from the facility to the central alarm station.

GENERAL RECOMMENDATIONS

**The Swedish Nuclear Power Inspectorate's
General Recommendations concerning
the Application of the Regulations (SKIFS
2005:1) concerning Physical Protection of
Nuclear Facilities**

General Recommendations

Such general recommendations on the application of regulations which specify how someone can or should act in a certain respect.

[1 § Regulatory Code Ordinance (1976:725)]

The Swedish Nuclear Power Inspectorate's General Recommendations concerning the Application of the Regulations (SKIFS 2005:1) concerning Physical Protection of Nuclear Facilities

Comments on certain Sections

1 §

The primary purpose of the measures required to protect nuclear facilities against antagonistic actions which can result in a radiological accident, should correspond to what is stipulated regarding barriers and defence in depth in Chapter 2. 1 § of the Swedish Nuclear Power Inspectorate's regulations (SKIFS 2004:1) concerning safety in nuclear facilities. This means that the measures should primarily prevent antagonistic actions from leading to abnormal operation and accidents. If this should nevertheless occur, radioactive releases to the environment should be monitored through the devices and prepared measures that have been established to limit and mitigate the consequences of an accident. To sum up, it can be said that antagonistic actions against a nuclear facility should not lead to more severe consequences than failures or malfunctions of equipment, human error, events or natural phenomena are expected to lead to.

It should be observed that the regulations also apply, where relevant, to the construction of a nuclear facility. The licensee is expected to describe physical protection measures during the construction period in connection with the submission of a preliminary safety analysis report to the Swedish Nuclear Power Inspectorate for approval, cf Chapter 4. 2 § second paragraph, SKIFS 2004:1. Security clearance in accordance with 7 § and the handling of information on safety and security measures in accordance with 9 § are examples of relevant measures.

1 The Physical Protection of Nuclear Material and Nuclear Facilities, INFCIRC/225/. The latest version is Rev. 4 (corrected).

The international recommendations on physical protection¹ which are published by the IAEA can provide guidance with respect to measures which need to be adopted at a facility to prevent and prohibit unauthorized possession of nuclear material and sabotage or any other such impact that can lead to a radiological accident. The guidelines on basic physical protection published by Svenska Kraftnät² can provide additional guidance with respect to the design of the physical protection at a nuclear facility.

2 §

The concept “guarded area” is also used in the Swedish Radiation Protection Authority’s (SSI’s) regulations³ but in another sense.

3 §

The facilities have been classified into three categories on the basis of an overall risk assessment. This assessment is based on the design basis threat decided by the Swedish Nuclear Power Inspectorate⁴ and is based on:

- the risk of sabotage against or damage to the facility leading to a radiological accident,
- the risk of nuclear proliferation in the event of the theft of nuclear material from the facility,
- the risk of nuclear material or nuclear waste from the facility being used for direct irradiation, contamination or dispersion.

3 §, Appendix 1

Point 2: When applying the exception in accordance with the last paragraph, a documented analysis should be carried out. The analysis should show that the risk of dispersion to or contamination of the environment should be reduced to an adequately low level.

4 §

The purpose of the planned and prepared measures stipulated in the second paragraph should be to, on short notice, reinforce the physical protection in connection with changes in the threat situation against the facility. Such changes may be of a varying nature and can comprise both unspecific threats, for example, as a result of global events, and more direct threats against the facility.

2 Guidelines – Basic Physical Protection. The version published in August 2003.

3 The Swedish Radiation Protection Authority’s regulations (SSI FS 1998:3) on the categorization of workplaces and workers at work with ionizing radiation.

4 The design basis threat is described in SKI-PM 2003:07.

The licensee should, as far as possible, co-operate with the police authority in the planning and preparation of measures. The planning of measures can be achieved in the form of pre-determined levels.

5 §

The following can be mentioned as an example of situations where the storage of nuclear material in accordance with the second paragraph can arise:

- the reception of unirradiated nuclear fuel at a nuclear power reactor and where containers must be stored in the protected area pending unloading,
- the storage of transport casks containing irradiated nuclear fuel at a nuclear power reactor where casks must be stored in the protected area pending loading onto a transport vehicle.

The following are examples of such situations where nuclear waste is stored in accordance with the third paragraph:

- large waste components which, due to the level of activity, are stored outdoors pending melting or other waste treatment,
- ingots resulting from melting which, with reference to the radioactivity, are stored outdoors,
- combustible waste which, prior to incineration, is stored in locked containers which are stored outdoors.

By a specially designated and clearly fenced-in area is meant an area that is specially arranged and clearly marked for the purpose where only this type of nuclear material or nuclear waste is stored. The stipulated documented risk analysis should be the basis for the choice of area.

6 §

The task of the individual should be to check and follow up the application of physical protection at the facility. The individual who is appointed, needs to be given an adequately strong and independent position in the organization with the authority to report directly to the highest manager of the facility.

7 §

The aim of security clearance is to, as far as possible, ensure that the individuals who carry out tasks at the facility are reliable and suitable from the standpoint of security. The security clearance should be based on the following:

- personal knowledge of the individual who is being checked, through interviews prior to employment,

- information which is provided in educational transcripts, certificates and job references,
- criminal background check, namely data extracted from police registers.

Security clearances should be continuously followed up, for example, through ensuring that managers maintain good knowledge of their employees.

The guidelines published by Svenska Kraftnät⁵ can provide guidance with respect to carrying out security clearances.

For individuals not employed by the licensee, for example hired personnel or sub-contractors, agreements or contracts should specify that security clearances will be carried out.

The Act and Ordinance on Security Protection contain regulations on conditions for the implementation of security clearances as well as cases where such clearances could also include a criminal background check.

8 §

In this context, controlled forms means that the study visit may not jeopardize the safety or physical protection of the facility.

Before the study visit is permitted, the need to conduct study visits within the facility should be thoroughly evaluated. Furthermore, alternatives, such as the use of modern information technology should be thoroughly evaluated.

Study visits should only be carried out in prepared visitors' areas. The visitors' areas should be thoroughly analyzed with respect to the risk of the possibility of negatively affecting facility safety and of counteracting the purpose of the physical protection. When necessary, compensatory measures should be adopted to maintain the protection and safety level in connection with study visits. Furthermore, visitors should be covered by the security checks that are applied at the facility in order to prevent unauthorized objects from being introduced into the facility. See general recommendations to 1.15 and 2.14.

Study visits to the facility's control room or central alarm station should be permitted on a very restricted basis.

⁵ Guidelines – Security clearance. The version published in December 1998.

In addition to a guide, groups of visitors should be escorted by a guard. The personnel escorting visitors, guides as well as guards, should be given suitable education and training to be able to handle any threat situations that can occur during the visit.

The conditions for and implementation of study visits at the facility should be documented in a procedure.

9 §

Information of decisive importance for the facility's safety refer to such information which, to a significant degree, can provide guidance to anyone with antagonistic purposes, for example, by causing a radiological accident through sabotage or by stealing nuclear material or nuclear waste. Examples of such information which normally arises in the facility's safety analysis report include detailed descriptions of the facility's barriers and safety functions with included safety systems or information on the design basis and the design of the physical protection.

Such information should only be given to the individuals who need it in order to complete their tasks. If hired personnel or sub-contracting companies are used, the possibility of signing confidentiality agreements should be considered. Special attention should be devoted to information on the measures that must be implemented if the facility is subjected to threat or attack.

Information refers to drawings, maps, photographs as well as documents containing information on safety and security measures. It should be noted that information, regardless of the medium on which they exist, needs to be protected against unauthorized access. See also the general recommendations to 11 § below.

Additional regulations regarding the handling of information that is of importance for the national security or for protection against terrorism is provided in the legislation on security protection⁶.

10 §

Lock systems to and inside the protected area, guarded area and inner area should have a security level that corresponds to the physical protection in general. Keys/keycards should be issued in exchange for receipts and a register should be kept of issued keys/keycards.

⁶ Act on Security Protection (1996:627) and Ordinance on Security Protection (1996:633).

Furthermore, procedures should exist for reporting and, where necessary, replacement of locks in connection with lost keys/keycards and blocking of keys/keycards when individuals terminate their employment or duties.

11 §

Computer-based systems of importance for facility safety and security refer to, for example the plant computer system. Furthermore, this refers to systems such as access control systems, alarm computer systems etc. the functions of which are essential for maintaining the physical protection of the facility.

Measures should be adopted to protect connected terminals/computers from unauthorized access, for example, by limiting access to areas where these are located in order to protect the systems from data intrusion, for example through the use of firewalls or physical separation from the administrative computer network.

Appendix 2

1.1

If there are several nuclear facilities at a site, the guarding can be organized so that both the responsible supervisors and guards have the entire site as their area of work.

The licensee should conduct an analysis of staffing in order to determine how many guards are needed at the facility. If the guards have several areas of responsibility, including for example fire-fighting, particular attention should be devoted to this in the staffing analysis in order to ensure that adequate priority is given to the guard duties in the event of, for example, simultaneous unauthorized intrusion and fire.

It should be noted that the control of devices for physical protection does not have to be carried out by guards but can also be conducted by other personnel, such as service and maintenance personnel. If the guards are given this task, the licensee must take this into account in the staffing analysis.

Specially trained personnel refers to the fact that the guards have undergone a complete basic course in guard duties for guards in authorized security companies, as stipulated by the National Police Board or, if the facility is a protected property, security guard training. Furthermore, training should comprise site-specific training at the facility where the guard duties are to be carried out.

The licensee should have procedures that ensure that both own and hired guards have adequate competence and the necessary approvals.

1.2

Examples of occasions when this may be relevant include situations where the technical surveillance equipment ceases to function and temporarily has to be replaced by guards or, in a threat situation, where the need for additional guards rapidly arises.

1.3

Certain of the nuclear facilities are protected properties in accordance with decisions by county administrative boards. The purpose of the information is to call the attention of licensees to the special regulations concerning guarding and security guards and their authority with respect to protected properties.

1.4

The central alarm station should be located within the guarded area or be given corresponding protection.

In order to ensure detection and verification of unauthorized intrusion, only one entrance and exit to the central alarm station should be used. Emergency exit routes should be locked and it should only be possible to open them from inside the central alarm station. The entrance to the central alarm station should have two locked doors in series so that an entrance airlock is formed. The entrance airlock should be designed so that access can be monitored by the operator inside the central alarm station.

In order to ensure that unauthorized persons do not have access to the central alarm station, it should be possible for the personnel in the central alarm station, for example using a TV camera, to be able to guard the outer entrance door and the area closest to this.

The purpose of alarm monitoring is to immediately detect if the connection no longer works, for example, due to a technical malfunction or sabotage.

1.5

The objective should be to be able to maintain the specified functions from the central alarm station. In order to ensure the uninterrupted operation of the central alarm station, the protection should be designed so that the personnel in the central alarm station can carry out their tasks during normal conditions as

well as during, for example, a fire, radiological accident, or other serious threat situation such as an armed attack. For example, measures should be adopted so that the personnel always have access to fresh air. Alternatively, a secondary alarm station can be arranged to ensure uninterrupted operation.

1.6

In order to maintain the stipulated uninterrupted operation of the central alarm station, the requirement for emergency power supply entails, in practice, requirements on uninterrupted power. In order to ensure the high availability of the technical surveillance equipment, such as alarm detectors, lighting and cameras, this should also be equipped with emergency power supply.

1.7

The design of the perimeter protection should be considered along with the guard staffing at the facility. Long response times should, for example, be compensated for by better physical barriers. The aim should be to achieve a robust and well-balanced protection, for example, entrances into the protected area through gates, culverts, cooling water intakes and outlets etc. should have the same protection level as the perimeter protection as a whole.

In order to meet to the requirements that are made regarding perimeter protection, the protected area should be surrounded by double fencing with a free zone of at least 6 metres between and on either side of both fences.

Fencing shall be adequately high and stable as well as equipped with barbed wire at the top so that unauthorized intrusion is made difficult and delayed. Furthermore, the number of entrances and exists should be thoroughly considered and limited to a minimum.

At least two types of alarm detectors should be used to achieve as high a detection probability as possible and reduce the number of undesired alarms.

In order to avoid false alarms/nuisance alarms, alarm detectors should be placed in the free zone between the fences. Furthermore, procedures should exist to continuously analyze alarm frequencies and, if necessary, adopt measures to minimize false alarms/nuisance alarms.

Motor vehicles refer to normally occurring private vehicles and load vehicles.

1.8

In order to determine detection limits at each facility, a risk assessment must be carried out by the licensee. Equipment for detecting nuclear material or nuclear waste can be placed either at the personnel exit or vehicle exit or in connection to the areas where nuclear material or nuclear waste is handled, treated or stored.

1.9

The aim should be to achieve a robust and well-balanced guarded area protection, for example, walls, floors, roofs, windows, doors, frames, hatches, lock devices etc. leading to the guarded area should have adequate robustness against unauthorized intrusion and be locked and equipped with an alarm. Where relevant, this also applies to cooling water intakes and outlets.

1.10

The purpose of sectioning is to facilitate guarding and access control during various operating states so that personnel is only given access to those parts of the facility necessary to carry out their duties. The licensee should establish how sectioning shall be carried out at various operating states both in connection with normal operation and during refuelling and maintenance outages. In certain cases, it is not possible in practical terms or appropriate to divide the guarded area into sections.

Special attention should be devoted to ensuring that the design of the guarded area protection does not negatively affect safety at the facility in general.

1.11

The nuclear material intended mainly comprises separated plutonium or high enriched uranium which, from a non-proliferation standpoint, is the material that is most attractive for theft and must therefore be stored in areas that are robustly constructed and well protected.

1.12

The purpose of the access control is that an individual shall only be allowed access to those parts of the facility that are necessary for him or her to be able to carry out his or her tasks. The following categories of persons may be concerned:

- individuals carrying out job-related tasks at the facility,
- visitors on business

In addition to these categories, visitors can also be granted access, in accordance with 8 §.

1.14

Procedures for access to the facility should be documented. The number of individuals who are entitled to grant others access to the facility should be limited and the list of these individuals should be kept up-to-date. The list of individuals who are given access to the facility should contain information regarding the parts of the facility to which they have been given access. The list should be kept for at least one year.

Examples of objects that should not be taken into the facility without special permission include cameras, weapons as well as explosive, toxic and flammable goods.

1.15

In order to check that prohibited objects are not taken into the facility (security check), technical aids such as metal detectors and baggage X-ray equipment should be routinely used. The possibility of detecting explosives should also exist and the use should be based on a risk assessment. The security check should be organized so that the control measures are applied on all of the individuals who are granted access to the facility, namely employees, subcontractors as well as temporary visitors, regardless of whether they arrive on foot or by vehicle.

1.16

The need to allow vehicle traffic into the protected area should be thoroughly considered and all permits should be subjected to review on a recurrent basis. Vehicle access to the guarded area should be thoroughly considered in each individual case and permits should be required on a case by case basis and only be granted if other alternatives are lacking. Before a vehicle is granted access to the guarded area, it should be thoroughly searched, for example, with respect to weapons and explosives.

The searching of vehicles should be carried out in a specially arranged place for the purpose which allows searching to be carried out before the vehicle is given access to the protected or guarded area. Such a vehicle control area can be designed with an airlock function to ensure that the vehicle cannot be driven into the site until the search is completed.

In order to limit the need of access for external vehicles accompanying goods into the facility, a goods reception terminal can be set up in connection with the

protected area. After unloading and the necessary search of the goods, the goods can then be transported to other destinations in the facility using the facility's own vehicles.

The licensees should review the location of personnel parking and the rules for vehicle traffic in the areas next to the protected and guarded areas.

1.17

In order to ensure the detection and verification of unauthorized intrusion, only one entrance and exit to the control room should be used. Emergency exits should be locked and it should only be possible to open them from the control room.

In order to ensure that unauthorized persons do not gain access to the control room, the personnel in the control room should be able, for example using TV cameras, to monitor the external entrance, emergency exits and the areas closest to these.

1.19

Examples of threats to activities in the control room include armed attacks against the facility with the aim of occupying or damaging the facility. The purpose of the measures required in the regulations is that the control room personnel should be able to execute measures that are prepared in advance to make it impossible for an attacker to carry out measures, from the control room, that can lead to a radiological accident. As a result the operating personnel must, in a short time, be able to block manoeuvre possibilities from the control room and evacuate it.

1.22

In the event of serious threat situations, for example, an armed attack against a nuclear facility, a situation can arise where the control room is no longer available and the emergency control post cannot be manned without the help of police. In such a situation, it should be possible to monitor the state of the reactor from a protected place. The available information can provide a basis for:

- judging whether immediate emergency preparedness measures need to be taken,
- judging whether immediate local manoeuvres need to be taken in affected units.

The information can also be used as a basis for prioritizing the necessary police work, for example, escorting operating personnel to local manoeuvring posts or ensuring that areas in the facility are secure.

1.24

The purpose of the internal communication is to, in the event of a threat, unauthorized access or sabotage, enable communication between the central alarm station and the on-duty personnel such as the guard personnel, operations management, on-duty engineer (VHI) or the equivalent, control room personnel as well as the communication that can be needed to bring and maintain the facility to a safe state.

The purpose of the external communication is to enable communication between the central alarm station and authorities such as the police authority, rescue services or county administrative board in the event of a threat, unauthorized intrusion or sabotage. In a serious threat situation, it is very important that the communication equipment should be highly reliable and available so that, for example in the event of an assault alarm, the police authorities can be contacted immediately.

In order to continuously maintain the stipulated communication, the communication equipment must be provided with an auxiliary power supply.

1.25

The work referred to is the annual recurrent refuelling and maintenance outages where large numbers of subcontractors are granted access to the guarded area. Such work results in significant difficulties to ensure that foreign objects are not taken into the facility in preparation for acts of damage or sabotage.

Therefore, the objective of the search should be to detect preparations for damage or sabotage and to, as far as possible, provide a basis for judging the credibility of threats, such as bomb threats made after the re-start of a nuclear power reactor.

If possible, the search should be conducted with the help of specially trained police with bomb detection dogs. The role of the police in connection with searching is described in the National Police Board's regulatory code⁷.

The searching of the facility should be a prerequisite for considering the facility as ready for operation.

2.1

If there are several nuclear facilities at a site, the guarding can be organized so that both the responsible supervisors and guards have the entire site as their area of work.

The licensee should conduct an analysis of staffing in order to determine how many guards are needed at the facility. If the guards have several areas of responsibility, including for example fire-fighting, particular attention should be devoted to this in the staffing analysis in order to ensure that adequate priority is given to the guard duties in the event of, for example, simultaneous unauthorized intrusion and fire.

Specially trained personnel refers to the fact that the guards have undergone the complete basic course in guard duties for guards in authorized security companies, as stipulated by the National Police Board or, if the facility is a protected property –security guard training. Furthermore, training should comprise site-specific training at the facility where the guard duties are to be carried out.

The licensee should have procedures that ensure that both own and hired guards have adequate competence and the necessary approvals.

2.2

Examples of occasions when this may be relevant include situations where the technical surveillance equipment ceases to function and temporarily has to be replaced by guards or, in a threat situation, where the need of additional guards rapidly arises.

2.3

Certain of the nuclear facilities are protected properties in accordance with decisions by county administrative boards. The purpose of the information is to call the attention of licensees to the special regulations concerning guarding and security guards and their authority with respect to protected properties.

2.4

The central alarm station should be located within the guarded area or be given corresponding protection.

In order to ensure detection and verification of unauthorized intrusion, only one entrance and exit to the central alarm station should be used. Emergency exit routes should be locked and it should only be possible to open them from inside the central alarm station. The entrance to the central alarm station should have two locked doors in series so that an entrance airlock is formed.

⁷ RPSFS 2000:54, FAP 206:3, August 23, 2000 with general recommendations for police work at nuclear power plants etc. – Searches after refuelling and maintenance outages or repairs.

The entrance airlock should be designed so that access can be monitored by the operator inside the central alarm station.

In order to ensure that unauthorized persons do not have access to the central alarm station, it should be possible for the personnel in the central alarm station, for example using a TV camera, to be able to guard the external entrance door and the area closest to this.

The purpose of alarm monitoring is to immediately detect if the connection no longer works, for example, due to a technical malfunction or sabotage.

2.5

The objective should be to be able to maintain the specified functions from the central alarm station. In order to ensure the uninterrupted operation of the central alarm station, the protection should be designed so that the personnel in the central alarm station can carry out their tasks during normal conditions as well as during, for example, a fire, radiological accident, or other serious threat situation such as an armed attack. For example, measures should be adopted so that the personnel always have access to fresh air.

Alternatively, a secondary alarm station can be arranged to ensure uninterrupted operation.

2.6

In order to maintain the stipulated uninterrupted operation of the central alarm station, the requirement for emergency power supply entails, in practice, requirements on uninterrupted power. In order to ensure the high availability of the technical surveillance equipment, such as alarm detectors, lighting and cameras, this should also be equipped with an emergency power supply.

2.7

The design of the perimeter protection should be considered together with the security guard staffing at the facility. Long response times should, for example, be compensated for by better physical barriers. The aim should be to achieve a robust and well-balanced protection, for example, entrances into the protected area through gates, culverts, cooling water intakes and outlets etc. should have the same protection level as the perimeter protection as a whole.

In order to meet the requirements that are made regarding perimeter protection, the protected area should be surrounded by double fencing with a free zone of at least 6 metres between and on either side of both fences.

Fencing shall be adequately high and stable as well as equipped with barbed wire at the top so that unauthorized intrusion is made difficult and delayed. Furthermore, the number of entrances and exits should be thoroughly considered and limited to a minimum.

In order to avoid false alarms/nuisance alarms, alarm detectors should be placed in the free zone between the fences. Furthermore, procedures should exist to continuously analyze alarm frequencies and, if necessary, adopt measures to minimize false alarms/nuisance alarms.

Motor vehicles refer to normally occurring private vehicles and load vehicles.

2.8

In order to determine detection limits at each facility, a risk assessment must be carried out by the licensee. Equipment for detecting nuclear material or nuclear waste can be placed either at the personnel exit or vehicle exit or in connection to the areas where nuclear material or nuclear waste is handled, treated or stored.

2.9

The aim should be to achieve a robust and well-balanced guarded area protection, for example, walls, floors, roofs, windows, doors, frames, hatches, lock devices etc. leading to the guarded area should have adequate robustness against unauthorized intrusion and should be locked and equipped with an alarm. Where relevant, this also applies to cooling water intakes and outlets.

2.10

The purpose of sectioning is to facilitate guarding and access control during various operating states so that personnel is only given access to those parts of the facility necessary to carry out their duties. The licensee should establish how sectioning shall be carried out at various operating states both in connection with normal operation and during planned refuelling and maintenance outages. In certain cases, it is not possible in practical terms or appropriate to divide the guarded area into sections.

Special attention should be devoted to ensuring that the design of the guarded area protection does not negatively affect safety at the facility in general.

2.11

The purpose of the access control is that an individual shall only be allowed access to those parts of the facility that are necessary for him or her to be

able to carry out his or her tasks. The following categories of persons may be concerned:

- individuals carrying out job-related tasks at the facility,
- visitors on business.

In addition to these categories, visitors can also be granted access, in accordance with 8 §.

2.13

Procedures for access to the facility should be documented. The number of individuals who are entitled to grant others access to the facility should be limited and the list of these individuals should be kept up-to-date. The list of individuals who are given access to the facility should contain information regarding the parts of the facility to which they have been given access. The list should be kept for at least one year.

Examples of objects that should not be taken into the facility without special permission include cameras, weapons as well as explosive, toxic and flammable goods.

2.14

In order to check that prohibited objects are not taken into the facility (security check), technical aids such as metal detectors, baggage X-ray equipment and explosives detection equipment should be available. The extent and scope of the security check should be based on an assessment. Depending on the threat situation, for example the extent of the checks can vary over time. The security check should be organized so that the control measures are applied on all of the individuals who are granted access to the facility, namely employees, subcontractors as well as temporary visitors, regardless of whether they arrive on foot or by vehicle.

2.15

The need to allow vehicle traffic into the protected area should be thoroughly considered and all permits should be subjected to review on a recurrent basis. Vehicle access to the guarded area should be thoroughly considered in each individual case and permits should be required on a case by case basis and only be granted if other alternatives are lacking. Before a vehicle is granted access to the guarded area, it should be thoroughly searched, for example, with respect to weapons and explosives.

The design and extent of the measures that must be adopted to prevent prohibited objects from being taken into the facility with vehicles should be based on an assessment. See general recommendations to 2.14.

The searching of vehicles should be carried out in a specially arranged place for the purpose which allows searching to be carried out before the vehicle is given access to the protected or guarded area. Such a vehicle control area can be designed with an airlock function to ensure that the vehicle cannot be driven into the site until the search is completed.

In order to limit the need of access for external vehicles accompanying goods into the facility, a goods reception terminal can be set up in connection with the protected area. After unloading and the necessary search of the goods, the goods can then be transported to other destinations in the facility using the facility's own vehicles.

The licensees should review the location of personnel parking and the rules for vehicle traffic in the areas next to the protected and guarded areas.

2.16

In order to ensure the detection and verification of unauthorized intrusion, only one entrance and exit to the control room should be used. Emergency exits should be locked and it should only be possible to open them from the control room.

In order to ensure that unauthorized persons do not gain access to the control room, the personnel in the control room should be able, for example using TV cameras, to monitor the external entrance, emergency exits and the areas closest to these.

2.17

Examples of threats to activities in the control room include armed attacks against the facility with the aim of occupying or damaging the facility. The purpose of the measures required in the regulations is that the control room personnel should be able to execute measures that are prepared in advance to make it impossible for an attacker to carry out measures, from the control room, that can lead to a radiological accident. As a result the operating personnel must, in a short time, be able to block manoeuvre possibilities from the control room and evacuate it.

2.21

The purpose of the internal communication is to, in the event of a threat, unauthorized intrusion or sabotage, enable communication between the central alarm station and the on-duty personnel such as the guard personnel, operations management, on-duty engineer (VHI) or the equivalent, control room personnel as well as the communication that can be needed to bring and maintain the facility to a safe state.

The purpose of the external communication is to enable communication between the central alarm station and authorities such as the police authority, rescue services or county administrative board in the event of a threat, unauthorized access or sabotage. In a serious threat situation, it is very important that the communication equipment should be highly reliable and available so that, for example in the event of an assault alarm, the police authorities can be contacted immediately. In order to continuously maintain the stipulated communication, the communication equipment must be provided with an auxiliary power supply.

3.1

Guarding can be carried out using own or hired security personnel and can be conducted in the form of stationary and/or recurrent security patrols. The design and extent of the guarding should be based on an analysis.

Specially trained personnel refers to the fact that the guards have undergone a complete basic course in guard duties for guards in authorized security companies, as stipulated by the National Police Board or, if the facility is a protected property –security guard training. Furthermore, training must comprise site-specific training at the facility where the guard duties are to be carried out.

The licensee should have procedures that ensure that both own and hired guards have adequate competence and the necessary approvals.

3.2

Examples of occasions when this may be relevant include situations where the technical surveillance equipment ceases to function and temporarily has to be replaced by guards or, in a threat situation, where the need for additional guards rapidly arises.

3.3

This can be achieved by ensuring that there is a central alarm station at the site to which other nuclear facilities are connected or through agreements with a security company which can make a central alarm station available.

3.5

To prevent unauthorized intrusion, the protected area can be surrounded by a fence which is sufficiently high and stable and equipped with barbed wire at the top. If the facility is in a building housing other non-nuclear activity, for example, a university department, the perimeter protection may consist of building enclosures such as walls, doors etc.

3.6

In order to determine detection limits at each facility, a risk assessment must be carried out by the licensee. Equipment for detecting nuclear material or nuclear waste can be placed either at the personnel exit and vehicle exit or in connection to the areas where nuclear material or nuclear waste is handled, treated or stored.

3.7

The aim should be to achieve a robust and well-balanced guarded area protection, for example, walls, floors, roofs, windows, doors, frames, hatches, lock devices etc. leading to the guarded area should have adequate robustness against unauthorized intrusion and be locked and equipped with an alarm.

Special attention should be paid so that the design of the guarded area protection does not negatively affect safety at the facility in general.

3.9

The purpose of the access control is that an individual shall only be allowed access to those parts of the facility that are necessary for him or her to be able to carry out his/her tasks. The following categories of persons may be concerned:

- individuals carrying out job-related tasks at the facility,
- visitors on business.

In addition to these categories, visitors can also be granted access, in accordance with 8 §.

3.11

Procedures for access to the facility should be documented. The number of individuals who are entitled to grant others access to the facility should be limited and the list of these individuals should be kept up-to-date. The list of individuals who are given access to the facility should contain information regarding the parts of the facility to which they have been given access. The list should be kept for at least one year.

3.12

The need to allow vehicle traffic into the protected area should be thoroughly considered and all permits should be subjected to review on a recurrent basis. Vehicle access to the guarded area should be thoroughly considered in each individual case and permits should be required on a case by case basis and only be granted if other alternatives are lacking.

In order to limit the need of access for external vehicles accompanying goods into the facility, a goods reception terminal can be set up in connection with the protected area. After unloading and the necessary search of the goods, the goods can then be transported to other destinations in the facility using the facility's own vehicles.

3.13

The purpose of the internal communication is to, in the event of a threat, unauthorized intrusion or sabotage, enable communication between the central alarm station and the on-duty personnel such as the guard personnel, operations management, on-duty engineer (VHI) or the equivalent, control room personnel as well as the communication that can be needed to bring and maintain the facility to a safe state.

The purpose of the external communication is to enable communication between the central alarm station and authorities such as the police authority, rescue services or county administrative board in the event of a threat, unauthorized access or sabotage. In a serious threat situation, it is very important that the communication equipment should be highly reliable and available so that, for example in the event of an assault alarm, the police authorities can be contacted immediately.

The aim of alarm monitoring is to immediately detect when the connection is no longer functioning, for example, as a result of a technical malfunction or sabotage.